

PATENT  
Case No. 011344

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant(s): Yih-Tai Chen and Longguang Cao

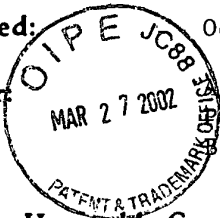
Serial No.: 09/977,897

Art Unit: 1642

Filed: October 15, 2001

Examiner:

For: Synthetic DNA Encoding An Orange Seapen-Derived Green Fluorescent Protein With Codon Preference Of Mammalian Expression Systems and Biosensors



The Honorable Commissioner Of Patents and Trademarks  
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT  
UNDER 37 C.F.R. 1.97

Sir:

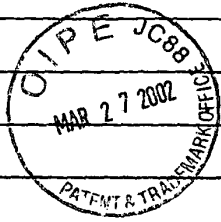
1. Applicant(s) submit(s) on the attached PTO-1449 herewith a list of patents, publications or other information of which they are aware, which they believe may be pertinent to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 C.F.R. 1.56. This Information Disclosure Statement is not an admission that any patent, publication or other information referred to herein is "prior art" for this invention unless specifically designated as such.

2. In accordance with 37 C.F.R. 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

3. If the captioned case is a continuing application of an earlier filed parent application, the Examiner is respectfully requested to refer to any art cited to the earlier filed parent application. If this is inconvenient, additional copies will be submitted upon request.

## INFORMATION DISCLOSURE STATEMENT

4. Copies of the following references listed on PTO-1449 are not enclosed because they have been submitted in a related application as follows:

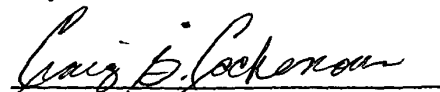
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REFERENCE	SN	FILING DATE	CASE NO.
			

5. In accordance with 37 C.F.R. 1.97, (check one)

- ☒ the attached information is filed ~~within three months of the filing date of the~~ before receiving a First Office Action in the captioned case.
- ☐ the undersigned certifies that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement.
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Respectfully submitted,

By:



Craig G. Cochenour  
Attorney For Applicant(s)  
Reg. No. 33,666

Buchanan Ingersoll, P.C.  
One Oxford Centre, 20th Floor  
301 Grant Street  
Pittsburgh, PA 15219  
Telephone: 412-562-3978

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IN RE UTILITY PATENT APPLICATION OF:

Yih-Tai Chen, et al.

SERIAL NUMBER

09/977,897

FILING DATE

10-15-01

FOR

A Synthetic DNA Encoding An Orange Seapen-Derived Green  
Fluorescent Protein With Codon Preference Of Mammalian Expression  
Systems and Biosensors

GRP. ART UNIT

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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	TECH CENTER 1600/2900
	AA	5,786,464	07/28/1998	Seed, Brian			
	AB	5,795,737	08/18/1998	Seed, Brian et al.			
	AC	5,874,304	02/23/1999	Zolotukhin, Sergei et al.			
	AD	5,968,750	10/19/1999	Zolotukhin, Sergei et al.			
	AE	6,232,107	05/15/2001	Bryan, Bruce J., et al.			
	AF	5,491,084	2/96	Chalfie, et al.			
	AG	5,436,128	7/95	Harpold, et al.			
	AH	5,401,629	3/95	Harpold, et al.			
	AI						
	AJ						
	AK						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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## OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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		KAETHER, C. et al., Visualization of protein transport along the secretory pathway using green fluorescent protein, FEBS Letters 369 (1995) 267-271, Federation of European Biochemical Societies Publ.	
		HU, W., et al., Expression of Aequorea green fluorescent protein in plant cells, FEBS Letters 369 (1995) 331-334, Federation of European Biochemical Societies Publ.	
		SOUTHWICK, P., et al., Cyanine Dye Labeling Reagents-Carboxymethylindocyanine Succinimidyl Esters, Cytometry 11:418-430 (1990), Wiley-Lisa, Inc. Publ.	
		TSIEN, R., Fluorescent Indicators of Ion Concentrations, Methods In Cell Biology, Ch. 5, pp. 127-156 (1989), Academic Press, Inc. Publ.	
		WANG, Y., et al., Fluorescent Analog Cytochemistry: Tracing Functional Protein Components in Living Cells, Methods in Cell Biology, Vol. 29, pp. 1-12 (1989) Academic Press, Inc. Publ.	
		WARD, W., et al., Reversible Denaturation of Aequorea Green-Fluorescent Protein: Physical Separation and Characterization of the Renatured Protein, Biochemistry 1982, 21, 4535-4540, (1982) American Chemical Society Publ.	
		WARD, W., et al., Spectrophotometric Identity of the Energy Transfer Chromophores in Renilla and Aequorea Green-Fluorescent Proteins, Photochemistry and Photobiology, Vol. 31, pp 611 to 615, (1980) Pergamon Press Ltd Publ.	
		WARD, W., Ch. 7: General Aspects of Bioluminescence, Chemi- and Bioluminescence, pp. 321-358, Edited by John G. Burr, (1985) Marcel Dekker, Publ., New York, New York.	
		WAUD, J., et al., Measurement of proteases using chemiluminescence-resonance-energy-transfer chimaeras between green fluorescent protein and aequorin, Biochem J. (2001) 357, 687-697 Biochemical Society Publ.	
		Johnson, F.H., Luminescence, Narcosis, and Life In The Deep Sea, Vantage Press, 1st Ed., pp.50-57 (1988)	

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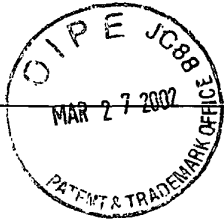
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		GIULIANO, K.A. and TAYLOR, D. L., Light-Optical-Based Reagents for the Measurement and Manipulation of Ions, Metabolites, and Macromolecules in Living Cells, Methods in Neurosciences, Volume 27, pp.1-16 (1995), Academic Press Inc., Publ., San Diego, California, USA.	
		HAAS, J., Codon usage limitation in the expression of HIV-1 envelope glycoprotein, Current Biology (1996), Vol 6 No. 3:315-324, Current Biology Ltd. Publ.	
		HASELOFF, J., et al., Removal of a cryptic intron and subcellular localization of green fluorescent protein are required to mark transgenic Arabidopsis plants brightly, Proc. Natl. Acad. Sci. USA Vol 94, pp 2122-2127, March 1997 Applied Biological Sciences, The National Academy of Sciences of the USA Publ.	
		HASTINGS, W. Bioluminescence, Chapter 48 in Cell Physiology Source Book, Ed. By Nicholas Sperelakis, pp. 665-681, (1995) Academic Press, Inc. Publ., San Diego, California, USA.	
		HEIM, R., et al., Engineering green fluorescent protein for improved brightness, longer wavelengths and fluorescence resonance energy transfer, Current Biology 1996, 6:178-182, Current Biology Ltd., Publ.	
		JONES, J. et al., Development and Application of a GFP-FRET Intracellular Caspase Assay for Drug Screening., Journal of Biomolecular Screening, Volume 5, Number 5, pp.307-318 (2000), The Society for Biomolecular Screening Publ., San Diego, California, USA	
		MCNEIL, P., Incorporation of Macromolecules into Living Cells, Methods in Cell Biology, Vol. 29, pp. 153-173 (1989) Academic Press, Inc. Publ.	
		MIYAWAKI, A., et al., Fluorescent indicators for Ca <sup>2+</sup> based on green fluorescent proteins and calmodulin, Nature, Vol 388, pp. 882-887, 28 August 1997, Macmillan Publishers Ltd. (1997) Publ.	
		MORISE, H. et al, Intermolecular Energy Transfer in the Bioluminescent System of Aequorea, Biochemistry, Vol. 13, No. 12, pp. 2656-2662 (1974)	
		RIZZUTO, R., et al., Rapid changes of mitochondrial Ca <sup>2+</sup> revealed by specifically targeted recombinant aequorin, Nature, Vol 358, pp. 325-327, 23 July 1992	

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		BARBER, K., et al., Delivery of membrane-impermeant fluorescent probes into living neural cell populations by lipotransfer, Neuroscience Letters 207 (1996) 17-20, Elsevier Science Ireland Ltd. Publ.	
		BREJC, K., et al., Structural basis for dual excitation and photoisomerization of the Aequorea victoria green fluorescent protein, Proc. Natl. Acad. Sci. USA Vol. 94, pp 2306-2311, March 1997 Biophysics, The National Academy of Sciences of the USA Publ.	
		BRIGHT, G., et al., Delivery of Macromolecules Into Adherent Cells via Electroporation for Use in Fluorescence Spectroscopic Imaging and Metabolic Studies, Cytometry 24:226-233 (1996), Wiley-Liss, Inc. Publ.	
		BARAK, L., et. al., A B-Arrestin/Green Fluorescent Protein Biosensor for Detecting G Protein-coupled Receptor Activation, The Journal of Biological Chemistry, Vol. 272 No. 44, Issue of October 31, pp 27497-27500 (1997), The American Society for Biochemistry and Molecular Biology, Inc. Publ..	
		CHALFIE, M., et al., Green Fluorescent Protein as a Marker for Gene Expression, Science Vol. 263, pp.802-805, 11 February 1994	
		CHENG, L. et al., Use of green fluorescent protein variants to monitor gene transfer and expression in mammalian cells, Research Division SyStemix, Inc. Palo Alto, CA 94304, 'Oncology Research Laboratories, The Toronto Hospital and Department of Medical Biophysics, University of Toronto, Toronto, Ontario M5G2M1, Canada, 23 February 1996.	
		CUBITT, A. et al., Understanding, improving and using green fluorescent proteins, TIBS 20 - November 1995, pp. 448-455, Elsevier Science Ltd.	
		DAVIS, I., et al., A Nuclear GFP That Marks Nuclei in Living Drosophila Embryos; Maternal Supply Overcomes a Delay in Appearance of Zygotic Fluorescence, Developmental Biology 170, 726 - 729 (1995), Academic Press, Inc. Publ.	
		EHRIG, T., et al., Green-fluorescent protein mutants with altered fluorescence excitation spectra, FEBS Letters 367 (1995) 163-166, Federation of European Biochemical Societies Publ.	
		GIULIANO, K.; et al., Fluorescent Protein Biosensors: Measurement of Molecular Dynamics in Living Cells, Annu. Rev. Biophys. Biomol. Struct. (1995) 24:405-34, Annual Reviews Inc. Publ.	

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